

**IN THE CLAIMS**

Please amend the claims as follows:

1-73. (Canceled)

74. (New) A membrane element comprising:

a first thin film composite membrane sheet;

a second thin film composite membrane sheet; and

a permeate carrier separating the first thin film composite membrane sheet and the second thin film composite membrane sheet, the permeate carrier having an H-value of about 0.045 atm-sec/gm or less, wherein the membrane element is capable of at least 50% MgSO<sub>4</sub> rejection of 500 ppm MgSO<sub>4</sub> in DI water at 65 psi applied pressure at 10 cm/s average feed channel cross-flow velocity at 77 degrees F.

75. (New) The membrane element of claim 74, wherein the H-value is about 0.035 atm-sec/gm or less.

76. (New) The membrane element of claim 74, wherein the thickness of the permeate carrier is approximately 0.025 inches or less.

77. (New) The membrane element of claim 74, wherein the thickness of the permeate carrier is approximately 0.020 inches or less

78. (New) The membrane element of claim 74, wherein the thickness of the permeate carrier is approximately 0.015 inches or less

79. (New) The membrane element of claim 74, wherein the A value of each of the first membrane sheet and the second membrane sheet is less than about 15.

80. (New) The membrane element of claim 74, wherein the A value of each of the first membrane sheet and the second membrane sheet is between about 15 – 30.
81. (New) The membrane element of claim 74, wherein the A value of each of the first membrane sheet and the second membrane sheet is between about 30 – 50.
82. (New) The membrane element of claim 74, wherein the A value of each of the first membrane sheet and the second membrane sheet is greater than about 50.
83. (New) The membrane element of claim 74, wherein the first thin film composite membrane sheet and the second thin film composite membrane sheet define a leaf.
84. (New) The membrane element of claim 83, wherein the leaf has a length of approximately 3 feet or less (Steve this number should take us outside of existing RO membranes with these H values for the perm carrier).
85. (New) The membrane element of claim 83, wherein the leaf has a length of approximately 3 feet to 5 feet.
86. (New) The membrane element of claim 83, wherein the leaf has a length of approximately 5 feet or greater.
87. (New) The membrane element of claim 74, wherein the membrane element is capable of at least 90%  $\text{MgSO}_4$  rejection of 500 ppm  $\text{MgSO}_4$  in DI water at 65 psi applied pressure at 10 cm/s average feed channel cross-flow velocity at 77 degrees F.
88. (New) The membrane element of claim 74, wherein the membrane element has a spiral wound configuration with an outer diameter of approximately 3.25 inches or less.